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Wk and III
Task CC
to OL 10/1/58

In replying please address:

25X1

[redacted]

ILLEGIB

[redacted]

September 23, 1958

Dear Sir:

The present art [redacted] of interest to 25X1

the Sponsor depends on the use of various tools [redacted] 25X1

[redacted] 25X1

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[redacted] In the use of such tools, and especially of one particular two-component tool, the operator must be able to sense changes in force or torque that are often so small as to make the task very difficult and time consuming, and sometimes even practically impossible. It is conceivable that [redacted] could 25X1

often be more successful and less time consuming if instrumentation could be provided to supplement the sensitive "touch" which is at present the basis of the technique used.

Another related problem is that a part of the "hold in position" component of the particular tool is sometimes broken off [redacted] It may be that this difficulty could be alleviated 25X1

either by the use of a better material of construction, or by some change in design or in fabrication procedure, or possibly even by the application of the above-mentioned instrumentation in connection with the operation of this tool.

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For these reasons, your technical representative is interested in an evaluation of the feasibility of developing an appropriate instrument or apparatus for use as indicated above, and also of modifying the particular tool so as to reduce breakage of the "hold in position" component. The research program proposed herein describes a feasibility study directed toward investigating these areas of interest.

We have examined [redacted] 25X1 and also the two-component tool which have been provided by your technical representative, and feel that a feasibility study offers promise of contributing worth-while and useful information in relation to the solution of this exceedingly interesting problem. On the basis of our conversation with your technical representative and our cursory examination of [redacted] 25X1 the tool, we propose that an experimental study and analysis of the operation of such [redacted] 25X1 and of this tool be conducted. The proposed effort would be directed toward (1) measuring the torques or other pertinent physical quantities which appear to be significant factors in the use of the tool; (2) analyzing the experimental measurements for the purpose of evaluating the possibility as to whether an appropriate device might be designed and developed to facilitate the use of the tool; (3) considering, evaluating, and making some recommendations concerning the design and development of such a device; and (4) investigating the possibility of reducing the number of breakages of the tool "hold in position" component by changing the material, the design, and/or the fabrication technique.

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Since the torques imposed on the "hold in position" component and on the "moving" component of the tool [redacted] 25X1

[redacted] 25X1 appear to be quantities of primary interest, the proposed research, as currently contemplated, would first be directed toward obtaining measurements of those torques and, if possible, of changes in them as a result of operation of the tool. It is likely that such measurements could be made with sufficient sensitivity by using bonded strain gages on the tool component(s) or on an extension of the tool handle. Experimental measurements might also be made in connection with slight instantaneous rotations of the "hold in position" component of the tool, or of other quantities considered to be sufficiently significant. An analysis would then be made based on the experimental measurements of torque, deflection, etc., and on the experience gained [redacted] 25X1 and the tool; this would be directed toward estimating the feasibility of developing some practical device for field use.

If, as expected, the results of the proposed program were favorable, it is likely that we could provide to your technical representative (1) specific quantitative data pertinent to the use of the tool, (2) an analysis of these data and other observations, (3) an estimate of the feasibility of developing practical accessory equipment for the tool, and (4) specific suggestions for an approach to any feasible developments.

Further, we would draw on our metallurgical and design experience to provide recommendations of means, if any, that appear likely to reduce or eliminate the problem of breakage of the tool "hold in position" component. It is apparent that only minor

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changes in design can be considered, such as changing a fillet radius. Another possible remedial measure which pertains would be rolling a fillet during fabrication, in an attempt to provide beneficial built-in stresses.

Your technical representative would be kept informed of the activity under the proposed program by discussions via the telephone and during his periodic visits. At the conclusion of the proposed research period, a letter report would be submitted that summarized the highlights of the activity performed and the results obtained.

We propose to undertake this activity over a period of three months, starting on the date of acceptance of authorization from the Contracting Officer to proceed. The proposed research program could be conducted under the general-services task which was proposed in our letter dated August 22, 1958. The Work Order would be a period-basis research agreement; it would be similar in form to those used previously under Task Order No. R and the same administrative procedure would be followed. The Work Order would require only that the effort be directed toward the objectives outlined above, within the limits of the funds and time provided.

It is estimated that an appropriation of $2,993, including the fixed fee, is needed to fund the proposed program for the three-month period. A general breakdown of the estimated costs is attached.

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If any additional information is needed, please let us know. You may direct any inquiries of a contractual nature to [redacted] at Extension 159. 25X1

Very truly yours,

[redacted] 25X1

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Proposal of [redacted] to the U. S. Government. 25X1

For Research on Study of the Feasibility of Developing Instrumentation for Use With a Special Tool.

Based upon a period-basis Contract for a research period of three months.

(Including time for submission of all reports. The proposed contract will not provide for earlier conclusion of the research.)

ESTIMATED COSTS

We expect that the cost of this research for the period indicated above may be distributed approximately as set forth hereon, subject to the understanding that this allocation is merely an estimate, and actual costs incurred may vary from the categories shown. We have determined that these estimates are reasonable and consistent with [redacted] established policies in its research for the various Government agencies, which policies are briefly discussed below and will be followed in determination of our actual costs hereunder. 25X1

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Materials & Supplies, etc.

(Including any equipment which may be purchased as necessary in performance of the research. Charges of $25 or less are excluded from this item.)

Use of Equipment and Technical Services, Travel, and Misc.

(Including applicable costs of technical research and service divisions, and use of technical equipment, except that any undistributed balances of these accounts will be included in overhead. Cost of travel includes reasonable actual subsistence expenses and the actual cost of transportation. An allowance of up to 8¢ per mile for all necessary travel by privately owned conveyance is included in lieu of the cost of such travel.)

Salaries & Wages

(Including our predetermined accrual for vacation, holiday, and sick-leave pay, pensions, and social security.)

Type of Employee	*No. of Man-Months*	*Estimated Cost*
Supervision	1/4	
Research Engineers	1-1/4	
Lab. Assistants	3/4	
Steno., Clerical, Shop & Photo., etc.	1/4	
Total Salaries & Wages		[redacted]

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Overhead

60 per cent of salaries and wages, as they are defined above. Provisional monthly reimbursement will be at the rate of 60 per cent of salaries and wages, as so defined, or at such other provisional rate as may from time to time be mutually agreed upon with the Government's audit representatives. This is a provisional rate for current reimbursement, which we have arrived at by negotiation with Government representatives, and it will be subject to retroactive revision to the "actual" rate agreed upon with them for each calendar year following a detailed audit for that year. The item of overhead includes general research, charges of $25 or less for materials and supplies, and other categories of costs we customarily include in our overhead account. Cash discounts on all purchases will be credited to overhead, instead of to the amount of the purchase. Scrap of appreciable value will be credited directly to the project. All other scrap will be credited to the overhead account, in which the Government participates.)

Total Estimated Cost	[redacted]
Fixed Fee	
Contract Price	$2,993

*Please let us have your acceptance in our hands by November 1, 1958.

Unless we extend the time, your acceptance after that date will be subject to agreement.

[redacted] 25X1

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